

REMARKS

The Office Action dated May 18, 2004 has been received and carefully considered. The above amendments and the following remarks are being submitted as a full and complete response to the Office Action.

Claims 6-7, 11-12, 18, 20, 22, 24, 26, 28, 33-34, 36, 38, 43 and 47 have been amended to correct minor informalities and to resolve antecedent basis issues. The amendment to claims 7 and 34 reflects a minor grammatical correction, adding the word "of" to the phrase "plurality of semitransparent textures." With respect to claims 6, 12, 18, 20, 22, 24, 26, 28, 33, 38, 43 and 47, these claims have been amended to resolve an antecedent basis problem concerning the phrase "said plurality of semitransparent textures." More specifically, this phrase has been amended to read, "said plurality of texture images," in conformity with the preceding recitation of "a plurality of texture images." Claims 11 and 36 were amended to remove the term "said rendering means," which also lacked antecedent basis. Entry of these amendments is respectfully requested.

New dependent claims 48 to 63 have been added. These claims have been supplied in response to the Examiner's comment on page 4 of the Office Action, that "the features upon which the applicant relies (i.e., "different adjacent polygons" in REMARKS p. 19, line 16, p. 22, line 19) are not recited in the rejected claim(s)." Claims 48-63 clearly recite that the semitransparent textures, or texture images, become associated respectively with different adjacent polygons, in a circulating manner, from among

the plurality of polygons that make up the object. Therefore, the applicant's REMARKS, as stated in the previous response of March 15, 2004, are fully supportive with respect to claims 48 to 63, and these claims are allowable over the cited prior art for the reasons stated in the previous response, the content of which is incorporated into this response by reference.

Finally, three new independent claims 64 to 66 have been presented, which are similar to claims pending in a counterpart application in Japan. These claims shall be addressed toward the end of the present response, after consideration of the other amendments discussed above.

Claims 1, 5-7, 11-13 and 17-63

With respect to pending claims 1, 5-7, 11-13 and 17 to 63, the following comments and rebuttals are respectfully submitted.

It is respectfully submitted that Ebersole et al., the only reference cited in the current Office Action, does not suggest any technique of mapping, moving and remapping texture images, as claimed, wherein textures associated with respective polygons making up an object are moved, so as to become associated with different adjacent polygons in the same object, and then remapped onto the different polygons.

More specifically, as argued in the applicant's previous response, the features recited in claims 48-63 are fully supported by the present specification. For example, as shown and discussed in the present specification in relation to FIG. 3, an object 204 is made up of a plurality of respective

semitransparent or transparent polygons 206, with respective texture images 208 (e.g., see FIGS. 4A and 4B) being initially mapped onto each of the polygons. Then, the texture images are moved in a circulatory fashion, as shown in FIG. 3, to become associated with different adjacent polygons. For example, the texture images in group ① are moved, as shown by the left pointing arrows, so that the texture image (5) is shifted to occupy the polygon formerly occupied by texture image (4), the texture image (4) is shifted to occupy the polygon formerly occupied by texture image (3), and the texture image (1) is shifted to occupy the polygon formerly occupied by texture image (5), and so forth, in a circulating manner. Thus, when the textures are moved, each respective texture ends up being associated with a different adjacent polygon from where it had been previously mapped, and the moved textures are then remapped onto the different polygons.

For the reasons above, it is respectfully requested that the Examiner acknowledge the allowable subject matter recited in dependent claims 48 to 63 in the next Office Action.

However, it is also respectfully submitted that the cited reference does not anticipate or render obvious the subject matter of the independent claims, which shall now be addressed in greater detail below.

Claims 1, 5-7, 11-13 and 17-47 were rejected under 35 U.S.C. § 102(e) as being anticipated by Ebersole et al. (U.S. Patent No. 6,500,008).

Initially, it is noted that the position taken by the Examiner in the current Office Action is quite inconsistent and contrary to admissions made by the Examiner in previous Office Actions.

Specifically, in the Office Action dated June 20, 2003 (in which Ebersole et al. was first cited and applied), the Examiner stated (page 6, second paragraph):

Ebersole et al. does not specifically disclose that (sic) "remapping" process. However, such a limitation ["remapping"] is shown in the teaching of Seefeldt et al.

Seefeldt et al. was withdrawn as a reference as a result of the applicant's priority claim. Upon removal of Seefeldt et al., in the next Office Action dated October 21, 2003, the Examiner again admitted (page 6, lines 3-4):

Ebersole et al. does not specifically disclose that (sic) "remapping" process. However, such a limitation ["remapping"] is shown in the teaching of Brett et al.

Although the "remapping" limitation and pertaining arguments still exist in the present application, and in spite of the fact that upon fully considering Ebersole et al. two times the Examiner admitted that the reference did not disclose a remapping process, in the current Office Action the Examiner has rejected all of the claims as allegedly being anticipated solely by Ebersole et al. The Examiner has made no effort to explain the inconsistency of his current position with the admissions made in the prior two Office Actions.

Moreover, it is respectfully submitted that the Examiner's initial and well-considered conclusion concerning Ebersole et al. was in fact correct. The reference does not disclose or suggest a remapping process, as claimed, in which texture images associated with respective polygons making up an object are moved, so as to become associated with different (adjacent or otherwise) polygons in the same object, and then remapped onto the different polygons. Further, apart from the claimed "remapping" feature, the reference also does not suggest the claimed "moving" step, wherein texture images associated with respective polygons making up an object are moved so as to become associated with different (adjacent or otherwise) polygons in the same object.

With respect to the moving and remapping limitations of the pending claims, in the paragraph bridging pages 2 and 3 of the Office Action, the Examiner relies primarily, if not solely, on the wireframe mesh surface 24 shown in FIG. 4B, which is texture-mapped with a water texture, as discussed in the paragraph bridging columns 8 and 9 of Ebersole et al. It is respectfully submitted, however, that the texture map, which is mapped onto the surface 24 shown in FIG. 4B, is not made up of a plurality of textures respectively mapped onto a plurality of polygons making up an object, as now claimed.

That is, Ebersole et al. describes the surface 24 as a "wireframe mesh 24" (col. 9, line 16) and therefore it is clear that the surface indicated by reference numeral 24 refers to the wireframe mesh surface as a whole. In other words, although the wireframe mesh 24 is constructed from a plurality of triangles,

there is no suggestion in Ebersole et al. that the plurality of triangles making up the wireframe mesh 24 each have respective texture images mapped thereto. Rather, the cited reference states that the "wireframe mesh 24 in FIG. 4B" (i.e., the surface 24 of the wireframe mesh as a whole) "is texture mapped with a water texture, and the texture map is translated in the direction of flow at the speed of flow" (emphasis supplied). Thus, Ebersole et al. discloses a single water texture mapped onto a single wireframe mesh surface. The one texture itself is apparently translated in some manner over the wireframe surface to represent water flow, although the translation method is not entirely clear or explained in detail in the cited reference.

Finally, in the Office Action, on the first line on page 3, the Examiner has placed in quotes the phrase, "different polygon surface based on water flow." This phrase does not exist anywhere in Ebersole et al., and placing it in quotes was misleading. Further, even if one considers the second and third particle systems referred to in column 9, lines 18-23, nothing in the reference suggests that a texture image initially mapped onto a surface defined by a first particle system is moved and remapped onto either of the surfaces defined by the second or third particle systems. On the contrary, the second particle system is mapped with a different more transparent texture map altogether, and the third particle system is created using small billboards to represent water droplets. Accordingly, the claimed "moving" feature is not met by the disclosure in Ebersole et al. of second and third particle systems.

In summary, the cited reference does not disclose or suggest the claimed features, wherein a plurality of texture images are respectively mapped onto a plurality of polygons making up an object, that the texture images are then moved to become associated with different polygons in the same object, and that the texture images are remapped onto the different polygons, as claimed.

Accordingly, pending claims 1, 5-7, 11-13 and 17 to 63 are in condition for allowance.

New Claims 64, 65 and 66

According to the invention set forth in new claims 64 through 66, a first semitransparent object having a three-dimensional shape (e.g., an object having an uneven surface as shown in FIG. 6 of the present specification) and a second semitransparent object having a three-dimensional shape are superimposed. Then, semitransparent textures corresponding to the first semitransparent object are drawn (i.e. mapped and rendered) onto the polygons making up the first semitransparent object, whereas other semitransparent textures corresponding to the second semitransparent object are drawn onto the polygons making up the second semitransparent object.

The following significant effects and advantages (1) to (4) are attributable to the features set forth in claims 64, 65 and 66.

(1) When the first and second objects 204a, 204b are arranged in superimposed layers as claimed, the first texture

images 208a and the second texture images 208b also become superimposed, producing various composite patterns, as shown in the encircled area A in FIG. 6. (See also, page 11, lines 10-13, of the present specification.)

(2) The first and second texture images 208a, 208b are moved on the first and second objects in arbitrary directions, and are restored in the texture rendering area 34a in real time. Therefore, an infinite number of random patterns can be generated or animated over the first and second objects 204a, 204b which are superimposed in layers, thereby making it possible to express fluid motion, such as a stream of water, or a flow of smoke, in a realistic manner. (See, page 11, lines 14-21, of the present specification.)

(3) The second semitransparent object 204b, having a three dimensional shape, moves arbitrarily on the first semitransparent object 204a, which also has a three-dimensional shape. Therefore, an expression of fluid motion characteristics, such as waves, can be achieved easily.

(4) The step of drawing the first semitransparent object 204a and the step of drawing the second semitransparent object 204b are not repeated. Rather, according to the claimed repeating step, only a step of moving the textures 208a, 208b upon such objects is repeated. Therefore, the rendering process can be carried out at high speed, and thus an expression of fluid motion characteristics, such as flowing water, can be achieved easily.

Although pending claims 64 to 66 have not yet been subjected to a rejection, at least with respect to currently cited Ebersole et al. (U.S. Patent No. 6,500,008), it is respectfully submitted that the cited prior art likewise fails to disclose or suggest the claimed features.

As noted above, in Ebersole et al., the "wireframe mesh 24 in FIG. 4B" (i.e., the surface 24 of the wireframe mesh as a whole) "is texture mapped with a water texture, and the texture map is translated in the direction of flow at the speed of flow" (emphasis supplied). Thus, Ebersole et al. discloses a single water texture mapped onto a single wireframe mesh surface.

Therefore, as also noted above, the reference does not suggest a "moving" step, wherein plural texture images associated with respective polygons making up an object are moved so as to become associated with different polygons in the same object. Certainly, the cited reference does not suggest the features of claims 64 to 66, in which two superimposed objects are provided, each constructed from multiple polygons, both objects having texture images drawn thereon, wherein the texture images are moved in superimposition over each of the respective objects.

Accordingly, it is respectfully submitted that new claims 64, 65 and 66 are also patentable over the cited prior art.

For the foregoing reasons, it is respectfully submitted that the claimed invention is not anticipated and would not have been obvious to a person skilled in the art at the time the present invention was made. Reconsideration and withdrawal of

the rejections, with allowance of the pending claims, is respectfully requested.

The present response is accompanied by a request for a one-month extension of time for responding to the Office Action. Fee for this extension, along with fees for extra claims presented in the above amendments, are enclosed. No other fees are due. Notwithstanding, should it be deemed that fees, or deficiencies in fees, are required in connection with this or any accompanying communication, such amounts may be charged to the Attorney's Deposit Account No. 07-2519.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Paul A. Guss', with a long horizontal stroke extending to the right.

Paul A. Guss
Reg. No. 33,099
Attorney for Applicants

CS-20-000908

775 S. 23rd St. #2
Arlington, VA 22202
Tel. 703-486-2710